USSR

DMITRIYEV, A. G., and TSARENKOV, B. V., Fizika i tekhnika poluprovodnikov, Vol 5, No 8, 1971, pp 1494-1502

radiation intensity. The authors express their gratitude to D. N. Nasledov for his interest, to G. V. Tsarenkov for his comments, and to O. V. Konstantinov and V. I. Perel'. They are associated with the A. F. Ioffe Physico-Technical Institute of Leningrad.

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1/3 024 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--STATISTICAL THEORY OF EXCITON RECOMBINATION OF ELECTRONS AND HOLES IN SEMICONDUCTORS -U-

AUTHOR-(02)-YEVSTROPOV, V.V., TSARENKOV, B.V.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, FIZIKA I TEKHNIKA POLUPROVODNIKOV, VOL. 4, NO 5, 1970, PP 923-932

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITON, ELECTRON RECOMBINATION, HOLE MOBILITY, SEMICONDUCTOR CRYSTAL, PARTICLE ANNIHILATION, PN JUNCTION, GALLIUM COMPOUND, PHOSPHIDE, ZINC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1441 STEP NO--UR/0449/70/004/005/0923/0932

CIRC ACCESSION NO--AP0136773

UNCLASSIFIED

2/3 · 024 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0136773

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MODERN STATISTICAL THEORY OF ELECTRON AND HOLE RECOMBINATION IN SEMICONDUCTORS ASSUMES THAT DURING A COLLISION, FOR EXAMPLE, OF A FREE HOLE WITH AN ELECTRON (FREE OR BOUND) THEIR ANNIHILATION TAKES PLACE KCKLY, THAT IS, WITHOUT THE FORMATION OF AN INTERMEDIATE ELECTRON HOLE COMPLEX (EXCITON). THE AUTHORS DEPARTED FROM THIS CONCEPT AND ASSUMED THAT ANNIHILATION DOES NOT OCCUR DIRECTLY, BUT WITH A DELAY WHICH INDICATES FORMATION OF AN EXCITON. THE STATISTICAL THEORY OF EXCITON RECOMBINATION IS CONSTRUCTED IN THE EXAMPLE OF TWO MODELS: (A) WHEN AN EXCITON LOCATED ON A RECOMBINATION CENTER IS FORMED, (B) WHEN A FREE EXCITON IS FORMED. AS A RESULT, FORMULAS ARE OBTAINED FOR THE RECOMBINATION GENERATION RATE. FOR MODEL (A) THE FORMULA PREDICTS SATURATION OF THE RECOMBINATION RATE OR HIGH INJECTION LEVELS. IF THE LIFE OF THE EXCITON IS ASSUMED TO BE ZERO, THE FORMULA FOR THE RECOMBINATION GENERATION RATE COINCIDES WITH THE GENERALLY KNOWN SHOCKLEY READ FORMULA. FOR MODEL (B) IT IS DEMONSTRATED THAT THE RECOMBINATION RATE IS NOT SATURATED FOR ANY INJECTION LEVELS. THE AUTHORS CONCLUDE THAT THEIR THEORY MUST BE CONSIDERED WHEN STUDYING LUMINESCENT, PHOTOELECTRIC, AND ELECTRIC PHENOMENA BOTH IN HOMOGENEOUS SEMICONDUCTOR CRYSTALS AND IN P-N-STRUCTURES. IN PARTICULAR, MODEL (A) IS APPLICABLE WHEN DESCRIBING THE INTENSITY OF RED LUMINESCENCE IN GAP ARISING FROM ANNIHILATION OF THE EXCITON LOCATED ON THE DONOR ACCEPT RCOMPLEX OF A DONOR NATURE (ZN SUBGA O SUBP).

UNCLASSIFIED

3/3 024 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0136773

ABSTRACT/EXTRACT--AS A RESULT OF ANNIHILATION OF AN EXCITON, EITHER A PHOTON (RADIATIVE ANNIHILATION) IS GENERATED OR ANNIHILATION ENERGY IS TANSFERRED TO VIBRATIONS OF THE CRYSTAL LATTICE (NONRADIATIVE ANNIHILATION). CONSEQUENTLY, THE RECOMBINATION GENERATION RATE OF ELECTRONS AND HOLES IS MADE UP OF TWO COM ONNTS: RADIATIVE AND NONRADIATIVE. IF ABSORPTION OF RADIATED PHOTONS IS NEGLECTED, THE RADIATIVE RECOMBINATION GENERATION RATE IS SIMULTANEOUSLY THE LUMINESCENT INTENSIT . THE TWO CASES OF EXCITON RECOMBINATION OF ELECTRONS AND HOLES IN SEMICONDUCTORS INVESTIGATED BY THE AUTHORS DO NOT EXHAUST ALL POSSIBLE CASES: FIRST, OTHER RECOMBINA IO MODELS CAN BE REALIZED, AND, SECONDLY, SEVERAL RECOMBINATION CHANNELS CAN OPERATE SIMULTANEOUSLY AND HAVE A MUTUAL EFFECT. FACILITY: LENINGRAD PHYSICO TECHNICA INSTITUTE IMENI A. F. IOFFE, N NGRAD, ACADEMY OF SCIENCES USSR.

UNCLASSIFIED

USSR

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UDC 621.315.592

YEVSTROPOV, V. V., TSARENKOV, B. V., Leningrad Physico Technical Institute imeni A. F. Ioffe, Leningrad, Academy of Sciences USSR

"Statistical Theory of Exciton Recombination of Electrons and Holes in Semiconductors"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 5, 1970, pp 923-932

Abstract: Modern statistical theory of electron and hole recombination in semiconductors assumes that during a collision, for example, of a free hole with an electron (free or bound) their annihilation takes place quickly, that is, without the formation of an intermediate electron-hole complex (exciton). The authors departed from this concept and assumed that annihilation does not occur directly, but with a delay which indicates formation of an exciton. The statistical theory of exciton recombination is constructed in the example of two models: (a) when an exciton located on a recombination center is formed, (b) when a free exciton is formed. As a result, formulas are obtained for the recombination-generation rate. For model (a) the formula predicts saturation of the recombination rate or high injection levels.

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YEVSTROPOV, V. V., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 5, 1970, pp 923-932

If the life of the exciton is assumed to be zero, the formula for the recombination-generation rate coincides with the generally known Shockley-Read formula. For model (b) it is demonstrated that the recombination rate is not saturated for any injection levels.

The authors conclude that their theory must be considered when studying luminescent, photoelectric, and electric phenomena both in homogeneous semiconductor crystals and in p-n-structures. In particular, model (a) is applicable when describing the intensity of red luminescence in GaP arising from annihilation of the exciton located on the donor-acceptor complex of a donor nature ($Zn_{Ga}O_{P}$).

As a result of annihilation of an exciton, either a photon (radiative annihilation) is generated or annihilation energy is transferred to vibrations of the crystal lattice (nonradiative

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YEVSTROPOV, V. V., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 5, 1970, pp 923-932

annihilation). Consequently, the recombination-generation rate of electrons and holes is made up of two components: radiative and nonradiative. If absorption of radiated photons is neglected, the radiative recombination-generation rate is simultaneously the luminescent intensity.

The two cases of exciton recombination of electrons and holes in semiconductors investigated by the authors do not exhaust all possible cases: First, other recombination models can be realized, and, secondly, several recombination channels can operate simultaneously and have a mutual effect.

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USSR

Photoelectric Effect

GOL'DBERG, YU. A., TSARENKOV, B. V.

UDC 621.382:535.376

"Dependence of the Exterior Quantum Output of Diffusion Sources of Radiation from Gallium Arsenide, On the Concentration of Current Carriers, Thickness, and Processing of the Surface of the Light-Evolving Region"

V sb. Arsenid galliya. (Gallium Arsenide -- Collection of Works), Vyp. 2, Tomsk, Tomsk University, 1969, pp 201-203 (from RZh-Elektronika i yeye primeneniye, No 4, Apr 70, Abstract No 4B292)

Translation: The effect was investigated of processing methods on the exterior quantum output (EQO) of electroluminescent diodes of incoherent radiation. The work shows that the EQO depends on the level of doping of the n-region (optimum concentration of impurities $\sim (2 \div 5) \cdot 10^{17}$ cm^{-3}) and the p-region (optimum concentration

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GOL'DBERG, YU. A., et al, V sb. Arsenid galliya. Vyp. 2, Tomsk, Tomsk University, 1969, pp 201-203 (from RZh-Elektronika i yeye primeneniye, No 4, Apr 70, Abstract No 4B292)

$10^{18} \div 10^{19}$ cm^{-3}). Moreover, the EQO is decreased with an increase of the thickness of the n-region (more abruptly at a temperature of 300°K than at a temperature of 77°K). In diodes with a polished surface, the EQO is higher than in diodes with a ground surface; the EQO is still higher in diodes with an etched surface. 3 ill. 5 ref. N.S.

UNCLASSIFIED PROCESSING DATE--13NOV70

CONTROLLED FLEXIBLE BETA PROBE FOR CONTACT RADIOMETRY OF MALIGNANT NEOPLASMS OF THE LUNGS -U-

AUTHOR-(03)-KRISHTAFOVICH, A.A., BUTORIN, YE.P., TSAREV, A.S..

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 6, PP 72-74

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIOMETRY, NEOPLASM, LUNG, MEDICAL EQUIPMENT, DIAGNOSTIC EQUIPMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1519

CIRC ACCESSION NO--AP0128914 STEP NO--UR/0214/70/015/006/0072/0074

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128914

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A CONTROLLED FLEXIBLE BETA PROBE IS PROPOSED FOR CONTACT RADIOMETRY OF MALIGNANT NEOPLASMS OF THE LUNGS. THE DESIGN OF THE PROBE IS SUCH THAT IT COULD BE INTRODUCED INTO ANY REGIONS OF THE BRONCHIAL TREE, LOBAR, SEGMENTAL AND SUBSEGMENTAL BRONCHI. THE POSSIBILITY OF INSTRUMENTAL CONTACT WITH THE PATHOLOGICAL FORMATION COULD BE USED FOR PURPOSES OF DIFFERENTIAL DIAGNOSIS OF MALGINANG AND BENIGN TUMORS OF THE LUNGS. FACILITY: RENTGENOLOGICHESKIY OTDEL LENINGRADSKOGO NAUCHNO-ISSLED. INSTITUTA TUBERKULEZA.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--ADSORPTION AND ELECTRON EMISSION OF BARIUM AND CESIUM FLUORIDE DOUBLE FILMS ON TUNGSTEN -U-

AUTHOR-(02)-OVCHINNIKOV, A.P., TSAREV, B.M.

COUNTRY OF INFO--USSR

SOURCE--RADIOTEKHNIKA I ELEKTRONIKA, NO. 4, 1970, PP 876-877

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--BARIUM FLUORIDE, CESIUM, TUNGSTEN, METAL COATING, WORK FUNCTION, VOLT AMPERE CHARACTERISTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO-----FD70/605041/F06 STEP NO--UR/0109/70/000/004/0876/0877

CIRC ACCESSION NO--AP0142763

UNCLASSIFIED

CIRC ACCESSION NO--AP0142763 UNCLASSIFIED PROCESSING DATE--11DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF RESEARCH ON BARIUM AND CESIUM FLUORIDE FILMS ON FLUORIZED TUNGSTEN ARE PRESENTED IN THIS BRIEF COMMUNICATION. THE RESEARCH WAS EXPERIMENTAL, AND WAS CONDUCTED IN A SPHERICAL ELECTRON PROJECTOR IN A VACUUM OF 10 PRIME9 NEGATIVE MM HG OBTAINED THROUGH THE USE OF A MOLYBDENUM SPRAY ABSORBER AND A BAYARD-ALPERT MONOMETER. AFTER CAREFULLY CLEANING THE EDGE OF THE SPECIMEN, BARIUM WAS SPRAYED ON IT, AND THE VOLT AMPERE CHARACTERISTICS DETERMINING THE DEPENDENCE OF THE WORK FUNCTION ON THE BARIUM SPRAY TIME WERE PLOTTED. THE BARIUM WAS MAINTAINED AT A TEMPERATURE OF 900DEGREES K TO DISTILL THE BARIUM IN TIS SPRAYING OVER THE EDGE. THE AVERAGE WORK FUNCTION OF THE PURE TUNGSTEN EDGE WAS FOUND TO BE 4.5 EV. BY HEATING THE EDGE TO 2400-2500DEGREES K, THE CESIUM WAS DRIVEN OFF AND THE TUNGSTEN SURFACE WAS THEN FLUORIZED, THIS HAVING BEEN DONE AFTER THE EDGE WAS CLEANSED OF BARIUM AND THE SURFACE SPRAYED BY CESIUM FLUORIDE. FURTHER DETAILS OF THE PROCESSING ARE GIVEN, AND THE RESULTS OF THE RESEARCH PRESENTED IN TABULAR FORM. PHOTOGRAPHS OF THE TUNGSTEN EDGE ARE ALSO SHOWN.

UNCLASSIFIED

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TsAREV, G. L. and LITMANOVICh, I. S. UDC 620.21

"A Study of Some Possibilities of Obtaining Dispersion Reinforced Aluminum Composition Alloys"

Minsk, Vestsi Akademii Navuk BSSR, No 2, 1973, pp 29 - 34

Abstract: Considerable hardening can be achieved by dispersing particles of refractory oxides in a metal matrix. Although this is usually done by powder metallurgical methods, the use of foundry methods has been demonstrated.

The authors formed a saturated metallic solution of dispersion particles in two ways, by blowing oxidizing agents through a solution of aluminum to form refractory aluminum oxide particles and by condensing oxide vapors in a solution. Three vapors were chosen for the experiment, Rhenium oxide and molybdenum oxide, because their low heats of formation and relatively low heats of vaporization were convenient and conducive to an aluminothermic reaction, and carbon dioxide because of the great practical value of any successful results with it.

Results of 3 - 5 minute treatments showed increases in hardness averaging 15 - 20%, sometimes as high as 50 - 60%. Thirty-minute heat treatments at temperatures up to 400 degrees centigrade did not eliminate the gains. The treated samples

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TsAREV, G. L., et al., Minsk, Vestsi Akademii Navuk BSSR, No 2, 1973, pp 29 - 34

also lost less hardness in preliminary cold working. At a temperature of 200 degrees centigrade, the hardness of an aluminum sample treated with Rhenium oxide exceeded that of pure aluminum by 70%. Tests were also made of the effect of vapor pressure, blow-through time and solution temperature; because of the greater convenience of regulation, these tests were made with carbon dioxide. All three factors were shown to have a significant effect.

An attempt was made to reduce slag formation by applying ultrasonic vibrations to the melt, but this had the side effect of speeding the reaction and leading to the formation of larger particles, thus negating the advantages gained.

The second experiment, vapor condensation, was done with boron oxide. Well dispersed, fairly uniform particles of boron oxide were inserted into aluminum and aluminum with 5% copper, but the hardness was increased by only about 5 - 8%, probably due to the low hardness of the boron oxide particles.

The proposed processes are thus shown to be useful and subject to control by varying the three factors mentioned.

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USSR

UDC 620.1

TSAREV, G. L., and LITMANOVICH, I. S., Physicotechnical Institute, Academy of Sciences Belorussian SSR

"Investigation of Some Possibilities of Producing Precipitation-Hardened Aluminum Alloy Composites"

Minsk, Izvestiya Akademii Nauk BSSR. Seriya Fiziko-Tekhnicheskikh Nauk, No 2, 1973, pp 29-34

Abstract: The possibility of producing precipitation-hardened aluminum alloy composites was investigated in which saturation of the metallic melt with dispersed inclusions was conducted in two variants: 1) formation of dispersed refractory particles of aluminum oxide as a result of blowing oxide vapors of elements, capable of aluminothermal reaction, through the aluminum melt; and 2) formation of dispersed particles as a result of oxide vapor condensation from passage through the melt. Rhenium oxide (Re_2O_7), Molybdenum oxide (MoO_3), and carbon dioxide were selected as the materials to be passed through the melt in the vaporous state. Hardness tests of the hardened samples showed that the Brinell hardness at 20°C was 12.65 for pure aluminum, 14.0 for Al + Re_2O_7, 14.9 for Al + CO_2, and 19.1 for Al + MoO_2. At 300°C these values were 1.6, 1.95, 2.65, and 2.90, respectively. It was established that the nature of the process, dispersity of particles, uniformity of inclusion distribution, and magnitude

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USSR

TSAREV, G. L., et al, Minsk, Izvestiya Akademii Nauk BSSR. Seriya Fiziko-Tekhnicheskikh Nauk, No 2, 1973, pp 29-34

of achieved strength are strongly affected by melt temperature, reaction rate, and time and pressure of the blow of oxide vapors through the melt. From this aspect there is a strong possibility that this process can be controlled, thus making it an additional method of producing cast metallic composites. 3 figures, 1 table, 7 bibliographic references.

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Acc. Nr. AP0048843

Abstracting Service:
CHEMICAL ABST.

5-70

Ref. Code
UR0460

90932u Distribution of density in the surface layer of amorphous polymers. Tsarev, P. K.; Baranov, V. G.; Lipatov, Yu. S. (Inst. Khim. Vysokomol. Soedin., Kiev, USSR). *Vysokomol. Soedin., Ser. B* 1970, 12(2), 113-17 (Russ). A method and device for studying the stratification of amorphous polymeric systems are described. Absorbance measurements of tech. poly(Me methacrylate) indicated that it had a complex surface layer. The d. of the surface layer was only very slightly less than that of the underlying mass.

DBJR

REEL/FRAME
19800610

USSR

ASOSKOV, A. D., TSAREV, B. M.

UDC 621.396.6.0[illegible](088.8)

"An Electronic Module"

USSR Author's Certificate No 256408, Filed 22 Jul 68, Published 14 Apr 70 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V302 P)

Translation: An electronic module is proposed which is equipped with a base, which is made in the form of two parallel dielectric circuit boards with openings for the leads of radio components which are mounted between these boards and perpendicular to them. As a distinguishing feature of the device, radio components can be replaced without disassembling the module by making every other opening in the boards with a diameter equal to that of the component whose lead passes through this opening, and supplying this opening with a cap of conical shape with a hole for the component lead.

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USSR

KASHAFUTDINOV, G. A., and TSAREV, S. G.

"The Effect of Ensilage Mass Prepared From Beet Leaves Treated With GMK-Na on Living Organisms"

V sb. Gidrozid Maleinovoy Kisloty kak Regulyator Rosta Rast. (Maleic Acid Hydrazide as a Regulator of the Animals' Growth), Moscow, "Nauka", 1973, pp 340-343 (from RZh - Biologicheskaya Khimiya, No 22, Nov 73, Abstract No 2057)

Translation: It has been established that silos from feed leaves obtained from beet fields treated with GMK-Na at a dose of 3 kg/hectare may be fed to lactating cows. GMK content in cows' milk feeding on such silos is negligible and couldn't possibly show undesirable effect. GMK-Na in doses used for treating fields is nontoxic to animals.

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USSR

UDC 632.95

KHASANOV, A. S., TSAREV, S. G., KAMAY, G. Kh., AZERBAYEV, I. N., GABDULLINA, N. Z.

"Synthesis of New Chloral-Based Organophosphorus Insecticides"

Alma-Ata, Khimiya atsetilena i tekhnol. karbida kal'tsiya--sbornik (Chemistry of Acetylene and Technology of Calcium Carbide--collection of works), "Kazakhstan," 1972, pp 359-361 (from RZh-Khimiya, No 9, May 73, abstract No 9N476 by T. Ya. Ogibina)

Translation: Agricultural insecticides are synthesized -- ethyl α-naphthyl β,β-dichlorovinyl phosphate (I) and ethyl β-naphthyl β,β'-dichlorovinyl phosphate (II). Example. 0.228 mole of Cl_3CCHO diluted by an equal volume of ether is gradually added with agitation and cooling to -10°C to an ether solution of 0.228 mole of diethyl α-naphthyl phosphite. The mixture is kept for 1 hour at $\sim$20°C, the ether is driven off, the residue is distilled twice under vacuum giving compound I with a yield of 68% $C_{14}H_{13}Cl_2O_4P$, boiling point 150-1°/0.12, d_4^{20} 1.3370, $n^{20}{}_D$ 1.5648. In a similar procedure compound II is produced with a yield of 73.3% $C_{14}H_{13}Cl_2O_4P$, boiling point 161-3°/0.1, d_4^{20} 1.3395, $n^{20}{}_D$ 1.5030. Compounds I and II are insoluble in water, and dissolve readily in ether, acetone and other organic solvents.

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KHASANOV, A. S., et al., Khimiya atsetilena i tekhnol. karbida kal'tsiya -- sbornik, "Kazakhstan," 1972, pp 359-361

The insecticidal and toxic properties of the chemicals were studied as well as their myotic and anticholinesterase effect and their curative action when hypodermically injected in cattle. It is shown that the toxicity of I for warm-blooded animals is 1.5 times less than that of chlorophos, while that of II is two times less, while the larvicidal effect on midge larvae is ten times greater than that of chlorophos. The curative action of I in hypodermic injection of cattle was studied in 1.5 and 3% concentrations. The preparation was used externally in the form of an emulsion with OP-7 in a dose of 200 ml. The animals were treated in March. Compound II in this method of injection is used only in the form of a 3% emulsion with OP-7. Observations showed that I is 100% lethal and II is 98% lethal for ox bot larvae.

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UNCLASSIFIED

PROCESSING DATE--16OCT70

METHOD FOR STUDYING RESONANCES IN MESON PHOTOPRODUCTION -U-

AUTHOR--TSAREV, V.A.

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COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(1), 65-7

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PARTICLE PRODUCTION, PHOTONUCLEAR REACTION, MESON, SCATTERING CROSS SECTION, SMALL ANGLE SCATTERING, RESONANCE SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0665

CIRC ACCESSION NO--AP0105641 STEP NO--UR/0386/70/011/001/0065/0067

UNCLASSIFIED

CIRC ACCESSION NO--AP0105641 UNCLASSIFIED PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD WAS DESIGNED FOR STUDYING RESONANCES IN PHOTOPRODUCTION OF MESONS UNDERGOING 2 PHOTON DECAY, BASED ON THE DETN. OF CROSS SECTIONS SIGMA AT SMALL ANGLES THETA. UNDER SUCH CONDITIONS THE CONTRIBUTION WAS ESSENTIALLY OF THE PRODUCTION AMPLITUDE OWING TO ONE PHOTON EXCHANGE (PRIMAKOV EFFECT) WHOSE INTERFERENCE PERMITTED DISTINGUISHING THE REAL FROM THE IMAGINARY PART OF THE AMPLITUDE. SUCH PARTS CAN BE EVALUATED BOTH IN MAGNITUDE AND SIGN, AND A THEORETICAL EQUATION WAS ESTABLISHED FOR SIGMA (THETA) (V. M. ARUTYUNYAN, 1962). FACILITY: FIZ. INST. IM. LEBEDEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

CHERNOV, V.P., TSAREV, V.A.

UDC 533.9.08

"Polarization Of Synthesized Plasma In Exterior Alternating Electrostatic Field"

V sb. Vopr. elektron. tekhniki (Problems Of Electronics Technology--Collection Of Works), Saratov, 1970, pp 120-126 (from RZh--Elektronika i yeye primeneniye, No 6, June 1970, Abstract No 6A229)

Translation: In the work relationships are obtained for the current density and field of polarization, not allowing for collisions with neutrals in the synthesized polarized plasma, as well as expressions for the steady-state volume density of the charges of the electrons and ions, taking account of collisions with neutrals. Summary

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USSR

UDC 621.385.032.269.1.072

ANISIMOV, YE. V., TSAREV, V. A.

"Ion Gun For Laboratory Investigations"

V sb. Vopr. elektron. tekhniki (Problems Of Electronics Technology--Collection Of Works), Saratov, 1970, pp 100-104 (from RZh--Elektronika i yeye primeneniye, No 6 June 1970, Abstract No 6A26)

Translation: The paper describes a simple portable model of an ion gun of the duoplasmotron type which is intended for investigation of the modulation process of an ion flow with respect to velocity. The gun has good operating characteristics. With respect to energy, the spread of the ions of the gun does not exceed 9 e.v. Summary.

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USSR

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TSAREV, V.A., ANISIMOV, YE.V. UDC 621.385.6

"Ion Gun For Microwave Devices"

Elektron. prom-st'. Nauchno-tekhn. sb. (Electronics Industry. Scientific-Technical Collection), 1970, No 1, p 77 (from RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10A36)

Translation: The source of parallel ion beams is for use in devices with modulation of ion beams with respect to velocity. The gun assures obtaining a beam of protons with an intensity of 5 ma. Summary.

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UDC 669.716:621.777.2

USSR

BARANCHIKOV, V. M., GLEBOV, Yu. P., GOROKHOV, V. S., DENISOV, S. M.,
ZAKHAROV, M. F., MILORADOVA, O. N., KHARENKO, V. F., and TSAREV, V. I.

"Development and Investigation of the Process of Pressing Rods and Shapes of Aluminum Alloys with Lubricant Without Press-Residue"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 129-137, resume

Translation: A number of problems related to the investigation of the process of pressing aluminum alloys with lubricant and the investigation of mechanical properties, macrostructure, and geometric dimensions of products are discussed. Technological-economical data on the process are presented. Five figures, nine tables, seven bibliographic references.

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1/2 052 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INFLUENCE OF THE NUMBER OF PORES AND THEIR DIMENSIONS ON THE THERMAL CONDUCTIVITY OF POROUS GRAPHITES -U-

AUTHOR-(04)-LUTKOVA, A.I., MUSTAFINA, F.N., TSAREV, V.YA., KUZNETSOVA, N.P.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TVERD. TOPL. 1970, (3), 107-14

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--THERMAL CONDUCTIVITY, GRAPHITE, POROSITY, THERMAL EFFECT, RADIATION EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0855 STEP NO--UR/0467/70/000/003/0107/0114

CIRC ACCESSION NO--AP0137883

UNCLASSIFIED

2/2 052 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0137883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECIMENS OF TWO TYPES OF GRAPHITE WITH POROSITY CHANGING 54-78PERCENT WERE PREPD. AND THE EFFECTIVE THERMAL COND., LAMBDA, WAS INVESTIGATED AT 500-2600DEGREESK. THE EFFECTIVE DIAM. OF PORES WAS 50-700 MU. THE PREDOMINANT INFLUENCE OF CONDUCTION OF HEAT ON THE LAMBDA VALUE WAS OBSD. WHILE RADIATION AND CONVECTION INCREASED LAMBDA TO 8PERCENT MAX. AT SMALLER THAN OR EQUAL TO 2300DEGREESK.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--REACTION OF LEAD NITRATE WITH SODIUM AND POTASSIUM CHROMATES IN AQUEOUS SOLUTIONS -U-

AUTHOR-(02)-GYUNNER, E.A., TSAREVA, A.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 1084-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--LEAD COMPOUND, NITRATE, SODIUM COMPOUND, POTASSIUM COMPOUND, CHROMATE, AQUEOUS SOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1107 STEP NO--UR/0078/70/015/004/1084/0185

CIRC ACCESSION NO--AP0123099

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123099

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTIONS IN THE PB(NO SUB3) SUB2 M SUB3 CRO SUB4 (M EQUALS NA, K)-H SUB2 O SYSTEM WERE STUDIED BY DETN. OF N OF THESE SOLNS. AND BY SOLY. METHOD. A DIAGRAM OF DELTA N CHANGES IN THE SYSTEM OF M EQUALS K WITH CHANGING K SUB2 CRO SUB4 CONCN. IS CONSTRUCTED. THE NA SUB2 CRO SUB4 SYSTEM FORMS ONLY PBCRO SUB4 WHEN K SUB2 CRO SUB4 SYSTEM FORMS PBCRO SUB4 AND 4PRCRO SUB4 .3K SUB2 CRO SUB4.

UNCLASSIFIED

USSR

UDC 547.26'118.07

PETROV, K. A., LEGIN, G. YA., and TSAREVA, A. KH.

"A Method of Synthesizing Monoalkyl Ethers of Arylphosphonous Acid"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 14, 1970, Author's Certificate no 268423, filed 4 Jan 69, p 24

Abstract: This Author's Certificate introduces: 1. A method of synthesizing monoalkyl ethers of arylphosphonous acid by interacting aryldichlorophosphine with hydroxyl-containing compounds with subsequent isolation of the goal product by conventional methods. As a distinguishing feature of the patent, the process is simplified and a more extensive raw material base is provided by using an equimolar mixture of higher and lower alcohols or a water-alcohol mixture as the hydroxyl-containing compounds. 2. The method described in (1) is distinguished by the fact that the process is carried out in an organic solvent such as benzene.

1/1

USSR

UDC 542.951.4

PETROV, K. A., LEGIN, G. Ya., and TSAREVA, A. Kh.

"Synthesis of Arylphosphonous Acid Monoesters"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 46, No 1, Jan 73, pp 152-155

Abstract: Synthesis of phenylphosphonous acid monoesters was carried out by reacting alcohols or their salts with phenylchlorophosphine and transesterification of the lower monoesters of phenylphosphonous acid. The reaction of alcohols with complexes of aryldichlorophosphines and aluminum chloride also yields the title compounds. The reaction was carried out at -10 to -15°; the products were obtained in 83-100% yields. The structures of all products were checked out by IR spectroscopical analysis.

1/1

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF CERTAIN ELECTROLYTIC PARAMETERS ON COMPOSITION AND QUALITY OF INDIUM THALLIUM ALLOY DEPOSITS -U-

AUTHOR-(02)-KOCHEGAROV, V.M., TSAREVA, A.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3) 675-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--INDIUM ALLOY, THALLIUM ALLOY, ELECTROLYSIS, ELECTRODEPOSITION, PERCHLORATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1949 STEP NO--UR/0080/70/043/003/0675/0677

CIRC ACCESSION NO--AP0118911

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118911

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPOSITION OF IN-TL ALLOYS FROM PERCHLORATE MIXTS. WAS STUDIED AT PH 2.5 AND 20-70DEGREES. THE CONCNS. OF IN(CIO SUB4) SUB3 AND TLCIO SUB4 IN THE 3 MIXTS. WERE 0.35 AND 0.05, 0.30 AND 0.10, AND 0.25 AND 0.15M, RESP. INDIUM DEPOSITION IS ACCOMPANIED BY LARGER POLARIZATION IN PURE SOLN. AND BY DEPOLARIZATION IN THE MIXT. THE DEPOSIT BECOMES BRIGHTER AND DENSER, I.E., THE QUALITY IMPROVES WITH HIGHER TEMPS., HIGHER C.D.S, AND HIGHER RATIO OF IN TO TL. HIGHER TEMPS. DECREASE IN POLARIZATION. THE ALLOY CURRENT EFFICIENCY DECREASES WITH HIGHER TEMPS. AND C.DS. THE FOLLOWING CONDITIONS ARE RECOMMENDED FOR A COMPACT DEPOSIT: IN(CLO SUB4) SUB3 0.35, TLCLO SUB4 0.05M; C.D. 1.0 A-DM PRIME2, PH 2.5, AND INSOL. ANODES. FACILITY: RYAZAN. RADIOTEKH. INST., RYAZAN, USSR.

UNCLASSIFIED

USSR UDC 581.183.035.2

KRASTINA, YE. YE., and TSAREVA, L. A., Artificial Climate Laboratory, Moscow Order of Lenin and Order of the Red Banner of Labor Agricultural Academy imeni K. A. Timiryazev

"Study of the Relationship Between Circadian Rhythms of Opposite Leaves Under Different Light Conditions"

Moscow, Izvestiya Timiryazevskoy Sel'skokhozyaystvennoy Akademii, No 1, 1970, pp 32-40

Abstract: A study was made to determine whether there was any correlation between the circadian rhythms of opposite (primary) leaves of the bean plant exposed to different light conditions. The bean plants were grown in an aqueous Knop nutrient medium under fluorescent lights and a constant temperature of 20° C. The fluorescent lights were arranged horizontally above the plants. At first, all the plants were exposed to a diurnal light-dark cycle, and then to different lighting conditions, depending on the experiment. In the experimental plants, and of the opposite leaves was introduced through a side opening into a dark chamber located under the lighting and having a detachable top lid. The second leaf was kept under continuous light.

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USSR

KRASTINA, YE. YE., et al., Moscow, Izvestiya Timiryazevskoy Sel'skokhozyaystvennoy Akademii, No 1, 1970, pp 32-40

During the experiment, the leaves introduced into the chamber were either kept in constant darkness or exposed to a light-dark cycle (during the light period the top lid was removed). In each experiment, there were two or three controls.

In the control variants, the plants were totally exposed to the light-dark cycle, continuous light and also to darkness, (in a special chamber with a removable forward wall). This chamber was located far from the light sources, so that the plants received very weak diffused light when the forward wall was removed. This light was sufficient to take readings but not strong enough to induce plant reactions to interruption of darkness. The rhythm of movement of bean leaves was measured by changes in the angle between leaf petioles and ribs.

Results of experiments under different lighting conditions revealed no correlation between circadian rhythms of the opposite leaves. The rhythm of movement of each leaf was determined by the light conditions.

2/2

USSR

UDC: 621.317.725(088.8)

SKRIPNIK, Yu. A., NIZHENSKIY, A. D., TSAREVA, N. M., Institute of Electrodynamics, Academy of Sciences of the [redacted]

"A Selective Microvoltmeter With Fixed Passband"

USSR Author's Certificate No 259264, filed 7 Jun 68, published 23 Apr 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A276 P)

Translation: In conventional circuits of selective microvoltmeters, the voltmeter readings are considerably dependent on the frequency of the input signal, temperature and the warm-up time of the instrument, which leads to appreciable measurement errors. The proposed device differs from existing instruments in the fact that the heterodyne inputs of the balance mixers of the amplification and conversion channel are interconnected and also connected to the heterodyne input of the balance mixer in the comparison channel; the output of the DC comparison channel is connected to the amplification control circuit of the difference frequency amplifier in the amplification and conversion channel. This type of connection prevents measurement error due to variations in temperature and in the warm-up time of the instrument. Resumé.

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USSR UDC 621.317.332.6

KUSTOVSKAYA, V. N., NIZHENSKIY, A. D., SKRIPNIK, YU. A., TSAREVA, N. M.

"Procedure for Measuring the Frequency Errors of Voltage Dividers in a Broad Frequency Range"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 17, 12 May 70, Pp 54, Patent No 270879, Filed 6 Nov 67

Translation: This Author's Certificate introduces a procedure for measuring the frequency errors of voltage dividers in a broad frequency range based on measuring the difference of the division coefficients of the voltage divider on two frequencies by comparing two voltages. In order to improve accuracy, voltages of the first and second frequency with equal amplitude are fed to the input of the investigated divider in turn with low commutation frequency. With a division coefficient equal to one, the output voltages of the investigated divider are rectified and amplified, the commutation frequency voltage is separated (synchronously detected) and measured; the second frequency voltage amplitude is varied to disappearance of the commutation frequency voltage, and with the division coefficient of the investigated divider, the separated commutation frequency voltage is measured the amplitude of which is proportional to the frequency error of the divider.

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USSR UDC 616.988.75(A2)

KETILADZE, YE. S., KNYAZEVA, L. D., KRYLOV, V. F., ALEKSEYEVA, A. A., POLYAKOVA, T. G., TSAREVA, R. G., LITVIN, L. L., and SHUL'ZHENKO, T. V., Clinical Department, Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences, USSR; and Municipal Infectious Disease Hospital No 82

"Clinical Picture and Some Aspects of the Pathogenosis of Influenza Caused by Virus A2 (Hong-Kong)"

Moscow, Sovetskaya Meditsina, No 7, 71, pp 115-120

Abstract: The article reports findings of a study of 402 influenza patients between 17 and 84 years of age, observed during the Moscow influenza epidemic of January and February 1969. The subjects included both those observed in the clinic and others in military units. The disease showed all the classical traits of influenza infection: acute beginning; rapid rise in temperature (39°C and higher in 88% of the civilian and 26% of the military cases); and swiftly increasing signs of toxicosis. Almost all patients showed headache, prostration, pains in the limbs, chill, dizziness, and vomiting. More severe cases showed changes in the vascular and central nervous systems: delirium, brief loss of consciousness, syncope, convulsions, and meningeal symptoms. Cyanosis of the lips and oral mucous membranes, microscopic hemorrhages of the

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USSR

KETIIADZE, YE. S., et al., Sovetskaya Meditsina, No 7, 71, pp 115-120

soft palate, and nosebleeds were observed in relatively small percentages of cases. A table shows the relative frequency of various symptoms in successive influenza epidemics from 1959 through 1969. However, these figures show no consistent pattern. As is clear from the data presented, the clinical picture of A2 (Hong-Kong) influenza does not differ in the character of individual symptoms from the A2 influenza of previous years. However, in the degree of manifestation of toxicosis and the number of severe casea among patients hospitalized in the clinic, the influenza in 1969 was more severe than in 1967, but less so than in 1959. Patients in military units generally showed a less severe course. Older patients, especially those with chronic respiratory disorders, showed intensification of these conditions.

2/2

Refractory Materials

USSR

UDC: 666.764.13:66.063.5

KASHCHEYEV, I. D., BABKIN, V. G., MAMYKIN, P. S. and TSAREVSKIY, B. V.,
Ural Polytechnic Institute imeni S. M. Kirov

"Kinetic Characteristics of Wetting and Impregnation of Magnesium Oxide With Fayalite"

Moscow, Ogneupory, No 4, Apr 72, pp 45-48

Abstract: A study has been made of the effect of saturating electrically molten magnesium oxide with a soluble salt of chromium acetate (7.50 g per 1 liter H_2O) on the capillary impregnation rate and spreading of fayalite over the surface of MgO under isothermal conditions. With increasing temperature, the impregnation rate increases. In specimens treated with a chromium acetate solution the impregnation rate drops to one half of the initial rate. Applying a chromium salt film to electrically molten MgO plates reduces the initial spreading rate from 400 and 700 deg/sec to 95 and 180 deg/sec at 1250 and 1300°C, respectively. To determine the impregnation rate, use was made of a method in which the movement front of the impregnating liquid is continuously fixed by variations in the resistivity of the specimen. The wetting rate was evaluated by changes in the angle of flow of the drop in time. (4 illustrations, 12 bibliographic references)

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1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--TEMPERATURE DEPENDENCE OF DENSITY AND SURFACE TENSION OF
IRON,SILICON MELTS -U-
AUTHOR-(03)-POPEL, S.I., SHERGIN, L.M., TSAREVSKIY, B.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 260-1

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--IRON ALLOY, SILICON ALLOY, SURFACE TENSION, HIGH PURITY METAL,
FERROUS LIQUID METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1106 STEP NO--UR/0076/70/044/001/0260/0261

CIRC ACCESSION NO--AP0123098
UNCLASSIFIED

2/2 020
CIRC ACCESSION NO--AP0123098 UNCLASSIFIED
ABSTRACT/EXTRACT--(U) GP-0- PROCESSING DATE--13NOV70

ABSTRACT. THE D. AND SURFACE TENSION OF THE
FE-SI MELTS WERE DETD. FROM THE LIQUIDUSLINE UP TO 1850DEGREES BY
MEASURING THE DIMENSIONS OF THE MELT DROPLETS IN A BEO CURCIBLE. THE
MAX. DEVIATIONS OF THE MOL. VOLS. FROM THE ADDITIVYT RULE (15PERCENT)
WERE FOUND AT SIMILAR TO 50 AT. PERCENT SI. SURFACE TENSION AT
1550DEGREES DECREASES FROM ABOUT 1750 MJ-M PRIME2 (FE) TO 700 MJ-M
PRIME2 (SI) ACCORDING TO AN S SHAPED CURVE. THE TEMP. COEFFS. OF
SURFACE TENSION D SIGMA-DT CHANGE FROM MINUS 0.35 FOR PURE FE TO MINUS
0.05 MJ-M PRIME2 FDEGREESC FOR PURE SI. FACILITY: URAL.
POLITEKH. INST. IM. KIROVA, SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC: 621.791.793

KROSHKIN, V. A., TSAREVSKIY, V. V., KABANOV, N. M., MAKSHANOV, V. S., FEDOSEYEV, B. A., GEYNISH, Z. V., GORKUNENKO, G. N., and GUBANOV, A. S., All-Union Scientific Research, Planning Technological Institute of Chemical Petroleum Equipment

"Electro-Slag Welding With Concomitant Normalization by the Induction Method"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 73, pp 48-51

Abstract: The authors study methods for increasing the resistance to brittle fracture of joints made from low-alloy grades of steel and which were electro-slag welded. The results show that the coincidence of the heat cycles ensures the required impact strength for all joint zones up to 80 mm thick down to -70°C during the pilot introduction of the new technology for the electro-slag welding of the 09G2S grade steel. The developed industrial frequency, induction unit makes it possible to coincide the heat cycles of electro-slag welding with the concomitant normalization of the longitudinal and annular seams on large and small equipment made from cold-resistant and heat-resistant, low-alloy grades of steel. Further study is required to select the optimal heat cycles for elecro-slag welding and normalization of joints as a function of thickness and steel grade.

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USSR

UDC 51:330.115

PANOV, S. A., TSARFIN, L. V.

"Economics-Mathematics Methods in the Solution of Problems of Planning of Shipping of Goods By Hourly Schedules"

Nekotor. Vopr. Issled. Transp. Potokov, [Some Problems of the Study of Transportation Flows--Collection of Works], No. 2, Moscow, 1970, pp 54-64, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. 5V592, from the Introduction).

Translation: The specific problem of optimization of the transport process in truck transport arising in connection with the new technology of housing construction is studied. One specific feature of the problem is that each consumer indicates in his order not only the name and volume of products required, but the delivery time during the day. The problem is stated, various mathematical models are analyzed, and the advantages and disadvantages of each are described from the standpoint of statement and possibility of solution.

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USSR

UDC: 537.311 /

ANTONOV, YE. A., GNATYUK, L. N., STEPANOV, B. M., FILENKO, YU. I., and TSARFIN, V. YA., Moscow

"Study of the Electric Explosion of Conductors by the Holography Method"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 6, Nov-Dec 72, pp 1210-1213

Abstract: Experiments have been reported on the registration of various stages of the explosion of conductors [EC] in air and in water by the usual dual beam system using holographic method of double exposure. From the data obtained the rate of the scattering of fragments has been determined to be about 150 m/sec, the velocity of the shock wave -- 500 m/sec, and the concentration of electrons in the plasma -- $N_{e_{max}}$ $4.8 \cdot 10^{18}$ cm^{-3}. The holographic method is by far more universal and promising than the photographic method for the registration of the phenomena accompanying EC. The size of the subject being studied, the ability to study EC independently of the specific luminescence of the object, no requirements placed on high quality optical elements in the systems forming radiation streams, all these aspects favor holography for the registration of rapid processes occurring during electric EC.

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1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--GAS CHROMATOGRAPHIC DETERMINATION OF OXYETHYLENE AND OXYPROPYLENE GROUPS IN AN ETHYLENE OXIDE PROPYLENE OXIDE COPOLYMER -U-

AUTHOR-(02)-MOKEYEVA, R.N., TSARFIN, YA.A.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 52-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GAS CHROMATOGRAPHY, ETHYLENE OXIDE, PROPYLENO OXIDE, COPOLYMER, PYROLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1789 STEP NO--UR/0191/70/000/003/0052/0053

CIRC ACCESSION NO--AP0123586

UNCLASSIFIED

CIRC ACCESSION NO--AP0123586

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OXYETHYLENE AND OXYPROPYLENE GROUPS IN THE TITLE COPOLYMER (I) WERE DETD. BY PYROLYSIS FOLLOWED BY GAS CHROMATOG. OF THE PYROLYSIS PRODUCTS, VIZ., ACH AND PRCHO. THE EXPTL. PROCEDURE WAS DESCRIBED. THE STD. DEVIATION DID NOT EXCEED 9.2PERCENT. THE METHOD PERMITTED ANAL. OF I SAMPLES CONTG. 5-60PERCENT CH SUB2 CH SUB2 O GROUPS.

Acc. Nr:
AP0038926 Abstracting Service: 4-70 Ref. Code:
CHEMICAL ABST. UR0191

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79718h **Gas-chromatographic determination of dimethylformamide and dimethylacetamide in poly(m-phenyleneisophthalamide).** Mokeeva, R. N.; Tsarfin, Ya. A. (USSR). *Plast. Massy* 1970, (1), 66-7 (Russ). [redacted] A small amt. (0.050-0.2000 g) of poly(*m*-phenyleneisophthalamide) (I) was placed in a 10-ml conical flask and dissolved in 3-5 g *N*-methyl-α-pyrrolidinone (I) and 0.0050-0.0200 g $HCONMe_2$ or $AcNMe_2$, and the soln. was passed through a Tsvet 1-64 chromatograph equipped with a flame-ionization detector. $AcNMe_2$ was used as internal std. in detn. of $HCONMe_2$ and vice versa. $AcNMe_2$, $HCONMe_2$, and I were best sepd. on 20% poly(ethylene succinate) adsorbed on Chromosorb W at 120 column temp. The carrier gas (He), H, and air velocities were 60, 42, and 203 ml/min, resp. The method was rapid (~50 min) and suitable for the detn. of $HCONMe_2$ and $AcNMe_2$ present in I in the range of 0.2-10%.
CKJR

E.B.

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REEL/FRAME
19740137

7

1/2 012 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--EXTRACTION AND PHOTOMETRIC DETERMINATION OF SOLASODINE -U-
AUTHOR-(02)-TUKALO, YE.A., TSARIK, G.N.

7

COUNTRY OF INFO--USSR

SOURCE--KHIM.-FARM. ZH. 1970, 4(2), 56-8

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ALKALOID, PROCESSED PLANT PRODUCT, SOLVENT EXTRACTION,
CHEMICAL ANALYSIS, PHOTOMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1993/0534 STEP NO--UR/0450/70/004/002/0056/0058

CIRC ACCESSION NO--AP0113425
UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AP0113425 UNCLASSIFIED PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPLEX FORMATION WAS INVESTIGATED OF SOLASODINE (I) WITH BROMOTHYMOL BLUE, BROMOPHENOL BLUE, METHYL RED, METHYL ORANGE (II), NEUTRAL RED, THYMOL BLUE, TROPEOLINE 00, AND PHENOL RED OVER THE PH RANGE 1.0-7.0. COLOR COMPLEXES FORMED WERE THEN EXTD. WITH CHC1 SUB3 AND THEIR OPTICAL D. WAS MEASURED. A 1 IS TO 1 STABLE COMPLEX OF I WITH II (LAMBDA MAX. 421 M MU, E PRIME1PERCENT SUB1 CM FOR I IN THE COMPLEX EQUAL 582 PLUS OR MINUS 6.35) WAS BEST EXTD. WITH CHC1 SUB3 AT PH 3.0. THE SENSITIVITY OF THE REACTION WAS 0.018 MG-ML. THE FOLLOWING PHOTOCOLORIMETRIC PROCEDURE FOR DETG. I WAS THEN DEVELOPED: EXT. 0.1, 0.2, 0.3, 0.4, AND 0.5 ML 0.1PERCENT I SOLN. WITH 2 ML EACH 0.05PERCENT II, ADJUST PH TO 3.0 WITH AN ACETATE BUFFER, EXT. THE COMPLEX FROM EACH SOLN. WITH CHC1 SUB3, DIL. EACH EXT. TO 25 ML WITH CHC1 SUB3, MEASURE THE OPTICAL D. USING 10 MM CELL, AND A BLUE FILTER, AND CONSTRUCT A CALIBRATION GRAPH. DISSOLVE A SAMPLE TO BE ANALYZED IN 100 ML CHC1 SUB3, TAKE 1 ML OF THE SOLN., AND CARRY OUT THE DETN. AS DESCRIBED. THE RELATIVE ERROR OF THE DETN. WAS GREATER THAN PLUS OR MINUS 1.3PERCENT.

UNCLASSIFIED

USSR

UDC 621.224:532.5.001.24

TSARIKIS, D. KH.

"Optimal Parameters of the Flow-Through Part of a Series DZO High-Pressure Diagonal Hydraulic Turbine for Heads of 150-110 m"

Tr. Mosk. Energ. In-ta (Works of the Moscow Power Engineering Institute), No 132, 1972, pp 54-65 (from Referativnyy Zhurnal -- Turbostroyeniye, No 1, 1973, Abstract No 1.49.141)

Translation: On the basis of theoretical consideration of the configuration of the flow-through part and an analysis of the results of experimental research on a series DZO high-pressure diagonal hydraulic turbine, recommendations are established on selection of the optimal relationship of its geometric elements and the values of the calculation parameters for heads of 150-200 m. These recommendations should be regarded as a first approximation, which will be refined in the course of subsequent research. 3 figures, 1 table, 7 references.

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USSR

UDC 669.295.48

SOROKIN, I. P., VASILENKO, V. P., and TSARINNAYA, A. V.

"Recovery of Titanium and Rare Metals Into Chloride Solution from Hydrolysis Products of Chloride Wastes of Titanium Industry"

Sb. tr. Vses. n.-i, i proyektn. in-t titana (Collection of Works of the All-Union Scientific Research Institute of Titanium), 1970, pp 99-105 (from RZH-Metallurgiya, No 11, Nov 70, Abstract No 11G157)

Translation: Results are presented of experiments involving the leaching of Ti, Ta, Nb, and Zr with HCl solution from their moist concentrate--hydrolysis product, of the spent melt of furnace for processing chloride pulp of the composition (in %): TiO_2 39.0, Nb_2O_5 2.87, Ta_2O_5 0.299, and ZrO_2 7.9. A study is made of different parameters and optimal conditions of the process: 15-20% solution of HCl, ratio T: Zh = 1:4, temperature 80-100° and duration 30 min with continuous mixing. One-phase leaching of freshly precipitated, moist concentrate with 15-20% HCl solution allows recovery in solution (in %): Ti up to 75, Zr up to 99, Nb up to 84, and Ta up to 66. 6 tables, 6 bibl. entries.

Authors' abstract

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USSR

UDC 666.1.001.5

TSARITSYN, M. A., Candidate of Technical Sciences, PROSHKINA, A. I., Engineer, State Scientific Research Institute of Glass, KARADZHIYEV, A. G., Engineer, Baku Glass Plant

"Glass Types Which Absorb Heat Rays"

Moscow, Steklo i Keramika, No 11, Nov 70, pp 15-17

Abstract: In connection with the increased use of glass for the facing of building exteriors, the Soviet Union has embarked upon the production of heat-absorbing window glass. The Baku Glass Plant was picked to master the production of this type of glass. In the article are presented results of laboratory research on the development of compositions of heat-absorbing glass, and the technological parameters of the industrial production of heat-absorbing glass at the Baku plant. A comparison is made with glass of this type produced by foreign firms. 2 tables. 3 figures.

1/1

1/2 007 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--USE OF PHOSPHORUS COMPOUNDS FOR PRODUCING LIGHTING ENGINEERING
OPAQUE GLASSES-U-
AUTHOR-(04)-TSARITSYN, M.A., PROSHKINA, A.I., SOKOLOV, M.S., SHAPIRO, M.D.

COUNTRY OF INFO--USSR

SOURCE--STEKLO KERAM. 1970, 27(3),13-16

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--GLASS COMPOSITION, OXIDE GLASS, PHOSPHOURS COMPOUND, GLASS
OPACITY, GLASS PROCESSING, LIGHT SCATTERING GLASS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1255 STEP NO--UR/0072/70/027/003/0013/0016

CIRC ACCESSION NO--AP0116717
UNCLASSIFIED

2/2 007

CIRC ACCESSION NO--AP0116717 UNCLASSIFIED PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONCD. SUPERPHOSPHATE CONTG. P SUB2 O SUB5 49.05 MINUS 50.92PERCENT AND CAO 21.7-2.46PERCENT WAS USED FOR OPACIFYING LIGHTING ENGINEERING GLASSES. IT WAS DRIED AT 400DEGREES AND SIFTED THROUGH A SIEVE 81 MESHES-CM PRIME2. GLASS BATCHES WERE PREPD. OF THE CHEM. COMPN. SIO SUB2 60.8-3.2, B SUB2 O SUB3 4-4.8, AL SUB2 O SUB3 7.9-8, P SUB2 O SUB5 5-6, CAO 2.2-2.6, NA SUB2 O 10.7-10.8, K SUB2 O 7, AND ADDNL. F 1.5PERCENT. THE MATERIAL WAS MELTED AT 1470-90DEGREES.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SEPARATION OF CARRIER FREE SELENIUM FROM COMPLEX MIXTURES -U-
AUTHOR-(02)-MOSKVIN, L.N., TSARITSYNA, L.G.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 187-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SELENIUM, COMPLEX COMPOUND, CHROMATOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0117 STEP NO--UR/0186/70/012/001/0187/0189

CIRC ACCESSION NO--AP0132410
UNCLASSIFIED

2/2 008

CIRC ACCESSION NO--AP0132410 UNCLASSIFIED PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRACES OF SE IN THE ACID (HBR OR HCL) SOLNS. OBTAINED IN THE DISSOLN. OF Y TARGETS ARE SEPD. BY PASSING THE SOLN. THROUGH AN EXTN. CHROMATGO. COLUMN PACKED WITH POROUS TEFLON, BY USING TRI BUT PHOSPHATE AS THE EXTRACTANT; ANY GE AND AS SORBED IN THE COLUMN ARE BACK EXTD. WITH 3N HCL, GA WITH N HSCL, ZN WITH 0.001N HCL, AND THE SE IS FINALLY BACK EXTD. WITH CL WATER. IN CASES IN WHICH THE TARGET IS DISSOLVED IN A LARGE VOL. OF ACID, THE SE CAN BE CONCD. IN ADVANCE BY COPPTN. WITH TE. THE SEPN. OF SE FROM THE SOLN. BY VOLATILIZATION AS SE PRIME2 NEGATIVE HYDRIDES IS NOT QUANT.

UNCLASSIFIED

USSR

UDC: 621.396.6-181.48

NAZAROV, G. V., NIKITIN, V. G., TSAR'KOV, A. N., MEDVEDEV, Yu.

"Group Mounting of Suspended Elements and External Leads on Integrated Circuit Boards"

Elektron. prom-st'. Nauch.-tekhn. sb. (The Electronics Industry. Scientific and Technical Collection), 1972, No 1, pp 95-99 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract No 8V271)

Translation: The paper analyzes the basic technological and design requirements for methods of group welding and soldering. Research results are presented on devices developed for group mounting of microcircuit crystals with rigid (ball) leads on substrates. Recommendations are formulated on selecting methods of mounting leads, crystals and substrates for various combinations of materials. Resumé.

1/1

USSR

SOPRONYUK, F. O., TSARKOV, E. F.

"The Stability of Linear Stochastic Differential Equations with Delay"

Dopovidi AN URSR [Ukranian], 1973, A, No 4, pp 347-350, 382 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V95 by the authors)

Translation: A study is made of the equation

$$dx(t,\omega)=\left[\sum_{j=0}^{n} a_j x(t-\gamma_j,\omega)\right]dt+\sum_{j=0}^{n}[d\Xi(t,\omega)]s(t-\Delta_j(t),\omega), \qquad (1)$$

where $x(t,\omega)$ R^N, a_j are square $N\times N$ matrices, $\Xi_j(t,\omega)$ are square matrices composed of independent processes of Brownian motion with zero drift and diffusion parameters σ^j_{kl} $(k, l=1,2,\ldots,N;\ j=0,1,\ldots,n)$. Sufficient conditions

USSR

SOPRONYUK, F. O., TSARKOV, E. F., Dopovidi AN URSR, 1973, A, No 4, pp 347-350, 382

for mean square asymptotic stability of the trivial solution of (1) are produced.

2/2

USSR

UDC 621.791.763.1:669.7.018

CHAKALEV, A. A., Candidate of Technical Sciences, PODLESNYKH, V. G., Engineer,
ORLOV, B. D., Doctor of Technical Sciences and TSAR'KOV, G. P., Engineer

"Some Problems of Selection of Spot Welding Modes for Light Alloys"

Moscow, Svarochnoye Proizvodstvo, No 4, Apr 72, pp 23-24.

Abstract: In this work, the process of spot welding is studied from the standpoint of plastic deformation of the metal when electrodes with spherical working surface are used. The role of plastic deformation of metal during spot welding is shown to be significant, determining the resistance of the process to the formation of various welding defects and the effectiveness of heating. A system of classification of light alloys based on plastic deformation resistance of the material under conditions of spot welding is suggested. A relationship is suggested for approximate estimation of certain mode parameters. Recommendations are given for the selection of types of welding machines.

1/1

USSR

UDC 519.2

TSAR'KOV, YE. F., KHIZHNYAK, V. N.

"Stability in the Mean Quadratic Trivial Solution of Linear Differential-Difference Stochastic Equations"

V sb. Vopr. dinamiki i prochnosti (Problems of Dynamics and Strength -- collection of works), vyp. 22, Riga, Zinatiye Press, 1972, pp 65-72 (from RZh-Kibernetika, No 7, Jul 72, Abstract No 7V106)

Translation: The investigated system of stochastic differential-difference equations

$$dx/dt + \sum_{j=1}^{n} Ajx(t - \Delta_j) + \sum_{j=1}^{N} (d/dt)[W_j(t)]\cdot x(t - \Delta_j) = 0, \qquad (1)$$

where $x \in R^n$, W_j is the matrix of independent processes of Brownian movement. A study was made of stability in the mean quadratic trivial solution of this system. The authors convert to the system of integral equations

$$x(t) = y(t) + \sum_{j=1}^{N} \int_0^t h(t - \tau)dW_j(\tau)x(\tau - \Delta_j), \qquad (2)$$

USSR

TSAR'KOV, YE. F., et al., Vopr. dinamiki i prochnosti, vyp. 22, Riga, Zinatiye Press, 1972, pp 65-72

where h(t) is the matrix satisfying (1) in the absence of disturbances and the conditions $h(t) \equiv 0$ for $t < 0$ and h(0) is the unit matrix. After row squaring of the equations from (2) and averaging, the system of integral equations is obtained with respect to the second order moments of the solutions of the initial system. The analysis of the latter permits conditions to be obtained which are necessary and sufficient for the stability of the trivial solution (1) in the mean square.

For the equation

$$d^2x/dt^2 + \alpha(dx/dt) + ax(t) + b[x(t) - x(t - \Delta)] =$$

$$= [x(t) - x(t - \Delta)](dW/dt),$$

which arises when analyzing the stability of the autooscillations of the cutting tool, it is demonstrated that the presence of a disturbance decreases the region of stability in the plane of the parameters (a, b).

2/2

USSR UDC 519.2

TSAR'KOV, YE. F.

"Approximate Methods of Studying Quasilinear Stochastic Differential Equations with a Delay"

Tr. Seminara po teorii differents. uravneniy s otklonyayushch. argumentom. Un-t druzhby narodov im. Patrisa Lumumby (Works of the Seminar on the Theory of Differential Equations with a Deflective Argument. University of Friendship of Peoples imeni Patrice Lumumba), 1972, No 8, pp 200-208 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V71)

Translation: A study was made of a stochastic differential equation with a delay. Its solution is not, generally speaking, a Markov process and therefore for approximate studies the apparatus of the Focker-Planck-Kolmogorov equations cannot be used directly. An approximate method of investigation based on expansion of the solution in a series with respect to a small parameter is proposed for such equations with a small parameter with a diffusion coefficient.

1/1

USSR

UDC: 536.24

TSARS, A. A. and GRISLIS, V. YA., Physico-Energetic Institute of the Latvian Academy of Sciences (Fiziko-energeticheskiy institut AN Latv. SSR)

"Heat Transfer During Vibration of a Surface in Viscous Fluids"

Riga, Izvestiya Akademii Nauk Latviyskoy SSR: Seriya Fizicheskikh i Tekhnicheskikh Nauk, No 1, 1970, pp 91-94

Abstract: The authors study heat transfer from vertically located tubes brought into oscillatory motion at a frequency of up to 15 cps and an amplitude of 2 $a=5\div15$ mm. In this instance water, transformer oil, and MS-20 grade oil are used as heat-transfer agents. It is shown that change in the physical properties of fluids within the given limits of vibration can be considered using Prandtl's criterion at a power of 0.45 while the heat flux direction can be considered by using the following ratio:

$$\left(\frac{Pr_f}{Pr_{wt}}\right)^{0.085}$$ for a laminar flow ($Re_f=1.5-735$) of the basic flux.

Heat-transfer during vibration does not depend on the parameters of a natural convection within the limits of variation of the complex $GrPr=4\cdot10^6-7\cdot10^8$. An expression for calculating heat transfer is given.

1/1

1/2 037 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--HEAT EMISSION AT SURFACE VIBRATION IN VISCOUS LIQUIDS -U-
AUTHOR-(02)-TSARS, A.A., GRISLIS, V.YA.

7

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS FIZ. TEHN. SER. (USSR), NO. 1, P.
91-4 (1970)
DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--WATER, TRANSFORMER OIL, MATHEMATIC EXPRESSION, HEAT LOSS, HEAT
TRANSFER FLUID, PIPE/(U)MC20 HEAT TRANSFER FLUID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/1823 STEP NO--UR/0371/70/000/001/0091/0094

CIRC ACCESSION NO--AP0122153
UNCLASSIFIED

2/2 037

CIRC ACCESSION NO--AP0122153 UNCLASSIFIED PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEAT EMISSION OF VERTICALLY ORIENTED PIPES VIBRATING AT A FREQUENCY OF 15 HZ. AND A 2A EQUALS 5 PLUS 15 MM AMPLITUDE IS CONSIDERED. WATER, TRANSFORMER OIL AND OIL MC-20 ARE USED AS HEAT CARRIERS. AT LAMINAR FLOW OF THE MAIN CURRENT THE CHANGES IN THE PHYSICAL PROPERTIES OF THE LIQUIDS ARE FOUND TO DEPEND ON PRANDTL'S CRITERION, WHEREAS THE DIRECTION OF THE HEAT CURRENT, ON THE RELATIONSHIP (PR SUBM-PR SUBCM) PRIMED.085. AN EMPIRIC EQUATION FOR CALCUALTING THE HEAT EMISSION IS SUGGESTED.

UNCLASSIFIED

USSR

UDC: 619:[616.918.42-06[616.993.192]

TSARUYEVA, T.V. and DZHANPOLADOVA, V.P., Dagestan Medical Institute

"Mixed Toxoplasmosis and Brucellosis in Farm Animals"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1970, pp 135-136

Translation: The purpose of the work was to determine whether there was a mixed infection in farm animals suffering from brucellosis. A total of 224 sera from sick cattle, sheep, and goats was examined. The animals were sent for slaughter to the Makhachkala and Derbent meat packing plants from different parts of the Dagestan ASSR. Examinations were conducted by the generally acepted method, approved by the USSR Ministry of Health, using the complement fixation (CF) test with toxoplasmin and the fluorescent antibody technique. The results were positive in 23.21% of cases in the CF test. The length of the delay in hemolysis varied: it was sharply positive in 15, positive in 9, and weakly positive in 18 cases. In examining 84 sera by the fluorescent antibody method (Willer-Coons technique), positive results were obtained in 25 cases in titers ranging from 1:5 to 1:40 titers were sharply positive in 9 and positive in 11 cases. It will be noted that positive results were obtained by the luminescent method with sera reacting negatively in the CF test, an indication of the greater sensitivity of the fluorescent antibody method. Thus, 23.21% of the farm animals suffering from brucellosis exhibited immunological changes specific to toxoplasmosis, showing that they had a mixed toxoplasmosis-brucellosis infection. Spontaneous abortions, stillbirths, and fetal deformities were observed in some of the animals suffering from the two diseases.

- END -

5341
CSO: 1840-D (94 pages)

2/2

USSR

UDC 621.791.011

KASATKIN, B. S., Doctor of Technical Sciences, TSARYUK, A. K., Candidate of Technical Sciences, and GEDROVICH, A. I., Engineer, Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Yield Bands in a Weld Joint"

Kiev, Avtomaticheskaya Svarka, No 6 (243), Jun 73, pp 1-4

Abstract: The authors study the features of the arrangement of yield bands in the zone of the joint near the seam. They show that weld heating leads to the formation of yield bands of various types. The plastic deformation of the metal in the zone near the seam has a three-dimensional character and the yield bands emerge on its surface. The character of the yield bands in this zone is determined by the stressed state. Under the effect of biaxial stresses of one sign, radial and transverse bands are generated as well as concentric circles (arcs). Bands of the type of logarithmic spirals and parabolas appear in the presence

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USSR

KASATKIN, B. S., et al., Avtomaticheskaya Svarka, No 6(243), Jun 73, pp 1-4

of tensile and compressive stresses. The formation in this zone of different systems of yield bands indicates that plastic deformation takes place successively in several stages in the process of heating and cooling. The article contains 4 figures and 8 bibliographic references.

1/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--INCREASE IN THE PHOTOELECTRIC SENSITIVITY OF POLYMERS WITH A
CONJUGATION SYSTEM. I. PHOTOSENSITIVITY OF A POLYMERLOW MOLECULAR
AUTHOR-(05)-DRABKIN, I.A., TSARYUK, V.I., CHERKASHIN, M.I., CHAUSER, M.G.,
KISILITSA, P.P.
COUNTRY OF INFO--USSR

7

SOURCE--ELEKTROKHIMIYA 1970, 6(1), 65-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--CONJUGATED POLYMER, MOLECULAR WEIGHT, PLASTIC FILM,
PHOTOSENSITIVITY, BENZENE DERIVATIVE, ACETYLENE, IODINATED ORGANIC
COMPOUND, CHLORINATED ORGANIC COMPOUND, ORGANIC AZINE COMPOUND,
PROTON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/1814 STEP NO--UR/0364/70/006/001/0065/0069

CIRC ACCESSION NO--AP0100388
UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0100388

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADDN. OF LOW MOL. WT. PHOTON ACCEPTORS (BROMANIL, CHLORANIL, TETRACYANOQUINODIMETHAN, TETRACYANOETHYLENE, TETRACYANOBENZENE, ALCL SUB3, OR PHTHALIC ANHYDRIDE) TO CONJUGATED POLYMERS (POLY(PHENYLACETYLENE), POLY(BETA IODOPHENYLACETYLENE), POLY(DIPHENYLBUTADIYNE), POLY(1 CHLOROCYCLOPENTENE), OR POLYAZINE) INCREASED THE PHOTO COND. (SIGMA) OF THE POLYMERS LESSTHANOREQUALTO10PRIME8 TIMES. THERE IS AN INCREASE OF SIGMA WITH THE POLYMER FILM THICKNESS, BUT NOT WITH INCREASED LAYER THICKNESS OF THE ACCEPTOR. THE MOST IMPORTANT FACTOR IN CHANGING SIGMA IS THE TYPE OF THE ACCEPTOR POLYMER INTERFACE. THE ADDN. OF THE ACCEPTORS ALSO INCREASES THE DARK COND. OF THE POLYMERS SLIGHTLY.

UNCLASSIFIED

USSR

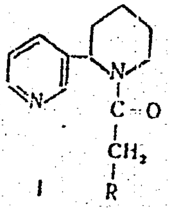
UDC 547.821+547.91

ARUTYUNYAN, L. S., TSATINYAN, A. S., AVAKYAN, O. M., KARAGEZYAN, S. G., SARAFYAN, V. G., and MHATSAKANYAN, V. A., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyana, Academy of Sciences Armenian SSR (Yerevan)

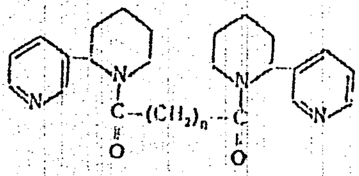
"Modification of Alkaloid Structures. VI. Some N-substituted Anabazines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 78-80

Abstract: Alkylhydroxyphenyl groups were substituted at the 2-, 3-, and 4-position of structures I, II, III, and IV.



I



II

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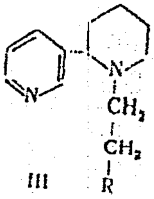
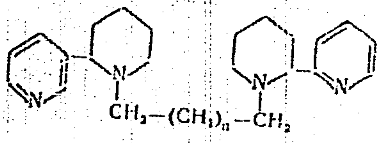
ARUTYUNYAN, L. S., et al., Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972, pp 78-80


III


IV

The products were separated and purified by thin-layer chromatography, and identified by their IR spectra. A table presents the values of $[\alpha]_D^{22}$, R_f, boiling point, and percent yield for all the compounds.

2/2

Nitrogen Compounds

USSR

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UDC 541.69+542.91+547.233

MNDZHOYAN, A. L., (DECEASED), MARKARYAN, E. A., BALAYAN, R. S., AVAKYAN, O. M., and [redacted], Institute of Fine Organic Chemistry imeni A. L. Mndzoyan, Academy of Sciences Armenian SSR, (yerevan)

"Arylalkylamine Derivatives. III. Synthesis and Pharmacological Properties of N-(3,3-Diarylpropyl)-N-Aryl(diphenyl)alkylamines"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vo, 24, No 9, 1971, pp 791-797

Abstract: Condensation of veratrole with methyl ester of cinnamic acid in nitrobenzene and in presence of aluminum chloride gave the methyl ester of 3-(3',4'-dimethoxyphenyl)-3-phenylpropionic acid, which could easily be saponified to the free acid, and finally converted to acyl chloride by treatment with thionyl chloride. Condensation of this acyl chloride with homoveratrylamine, phenylisopropylamine and diphenylaminobutane gave respective amides, for example homoveratrylamide of 3-(3',4'-dimethoxyphenyl)-3-phenylpropionic acid, which could be reduced to the respective secondary amines using $LiAlH_4$ in ether. Tested in an assay on rat's spermiduct these amines showed sympatolytic and some of them even adrenalytic activity.

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1/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--THE USE OF PITUITRIN IN HEMORRHAGIC ESOPHAGEAL VEINS AND DURING
SURGERY IN PATIENTS WITH PORTAL HYPERTENSION -U-
AUTHOR-(03)-TSATSANIDI, K.N., NOVIK, M.G., SHERTSINGER, A.G.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 5, PP
29-33
DATE PUBLISHED---------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PITUITARY GLAND, HORMONE, HEMORRHAGE, VEIN, DIGESTIVE SYSTEM,
SURGERY, HYPERTENSION

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1020 STEP NO--UR/0589/70/104/005/0029/0033
CIRC ACCESSION NO--AP0109171
UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AP0109171 UNCLASSIFIED PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN 96 PATIENTS WITH THE PORTAL
HYPERSENSION SYNDROME TO REDUCE PORTAL PRESSURE PITUITRIN WAS USED (20
UNITS INTRAVENEOUSLY BY DRIP ADMINISTRATION) IN A COMPLEX OF MEASURED
DIRECTED TO CESSATION OF BLEEDING FROM ESOPHAGEAL VEINS. BLEEDING WAS
ARRESTED IN 65 CASES (67.7PERCENT). IN 27 PATIENTS, IN WHOM PITUITRIN
WAS NOT ADMINISTERED, HEMORRHAGE WAS LIQUIDATED BY CONSERVATIVE MEASURES
IN 6 OF THEM (22.2PERCENT). PHARMACOLOGICAL PORTAL DECOMPRESSION WITH
PITUITRIN IN 29 PATIENTS DURING SURGERY FOR PORTAL HYPERTENSION RESULTED
IN REDUCTION OF THE OPERATIVE BLOOD LOSSES. NO SERIOUS SIDE REACTIONS
HAVE BEEN NOTED. FACILITY: OTD. PORTALNOY GIPERTENZII INSTITUTA
KLINICHESKOY I EKSPERIMENTAL'NOY KHIRURGII MINISTERSTVA
ZDRAVOOKHRANENIYA SSSR AND 52-Y GORODSKOY KLINICHESKOY BOL'NITSY G.
MOSCOW.

UNCLASSIFIED

USSR

UDC 519.1

IL'INSKIY, N. F. and TSATSENKIN, V. K.

"Mathematical Description of Electromechanical Systems Based on the Theory of Graphs"

Moscow, Avtomatizir. elektroprivod v nar. kh-ve--Sbornik (Automated Electrical Circuits in the National Economy -- Collection of Works), Vol 1, "Energiya", 1971, pp 30-33 (from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V395)

Translation: The theory of graphs provides a conceptual mathematical framework for obtaining equations describing complex electromechanical systems constructed of physically variegated elements. Known methods of obtaining a mathematical description using graphs were developed for linear systems. The report shows that the theory of linear graphs permits systematization also of the processes of deriving equations for nonlinear electromechanical systems. Underlying the method is the representation of system components as n-pole diagrams with concentrated parameters. The mathematical description of components is represented by polar equations relating

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USSR

IL'INSKIY, N. F. and TKHATSENKIN, V. K., Avtomatizir. elektroprivod v nar. kh-ve--Sbornik, Vol 1, 1971, pp 30-33

variables at poles with component parameters. The mathematical expression of structural connections in a system is based on generalized Kirchhoff laws written for a linear graph and for an isomorphic system. With the example of a system of automated electrical circuitry, the paper shows that, based on the postulates and theorems of the theory of graphs, the processes of deriving equations of a system independently of its complexity can be profitably systematized and formalized.

Authors' Abstract

2/2

USSR UDC 611.45+611.41]-018.068

CHAKHAVA, O. V., LEBEDEV, K. A., and TSATSENKINA, T. I., Laboratory of General and Radiation Immunology, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR; Institute of Medical Biological Problems, Ministry of Health USSR

"Morphological and Functional Characteristics of Lymphoid Organs and Adrenal Glands in Germ-Free Guinea Pigs"

Leningrad, Arkhiv Anatomii, Gistologii, i Embriologii, Vol 58, No 6, Jun 70, pp 28-34

Abstract: The effect of microflora on the morphological and functional condition of lymphoid tissue and of the adrenal glands was studied. Germ-free guinea pigs were obtained on the last day of pregnancy by hysterectomy, were maintained in special polyvinyl chloride isolation chambers on a sterilized diet and raised under sterile conditions for 16 days. They were then given a thorough microbiological check once or twice each week. Twenty-six germ-free (and more than 100 ordinary animals) were used. Five sterile guinea pigs were subjected to nonpathogenic, Staphylococcus albus from the 5-6th week of life. After 1-2 months the animals were killed. A pure culture of Staphyloccus albus in the feces of these animals reached 2-10 billion cells per 1 g of feces. In

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USSR

CHAKHAVA, O. V., et al., Arkhiv Anatomii, Gistologii, i Embriologii, Vol. 58, No 6, Jun 70, pp 28-34

germ-free animals, popliteal and iliocaecal lymph nodes and Peyer's patches were much smaller and contained much fewer globulin-producing cells, and 20-40 times fewer secondary follicles, as compared to controls. However, in germ-free guinea pigs, the number of globulin-producing cells in the submucosa of the intestine was somewhat below that of normal animals. The spleen tissue of germ-free guinea pigs was of normal relative weight. Considerable adrenal hypertrophy was found in the test animals, and their oxycorticosteroid level and the ascorbic acid content in the adrenal glands were high.

2/2

USSR

UDC 621.319.4

ALFEROV, A. S., KUSHNIR, F. V., AL'FTAN, E. A., KIRENKO, V. D., VASIL'YEV, V. V., DEGTYAR', L. E., SOLOMENCHUK, L. K., TSAYFER, K. M., ZELIKOVSKIY, Z. I., Leningrad Electrical Engineering Institute of Communications imeni Professor M. A. Bonch-Bruyevich

"An Electrical Device"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 24, Aug 71, Author's Certificate No 311301, Division H, filed 31 Dec 68, published 9 Aug 71, p 188

Translation: This Author's Certificate introduces an electrical device which contains a resistor and a capacitor. The device is made in the form of a stack of sections of microwire and insulation coated with a current-conducting layer, and is equipped with an output. As a distinguishing feature of the patent, in order to reduce the natural resistance and inductance of the capacitor, improve the technological feasibility of the design and reduce cost, the ends of each section of wire are connected to different leads, which may be two or more in number.

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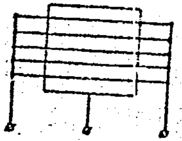
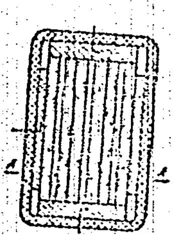
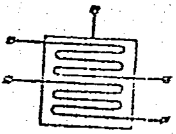
ALFEROV, A. S. et al., USSR Author's Certificate No 311301







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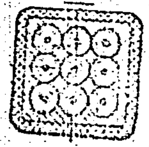

2/2

USSR

UDC: 621.317.8

AVVAKUMOV, Yu. I., DEGTYAR', L. E., ZELINOVSKIY, Z. I., KERITSKIY, L. P., SOLOMYANCHUK, L. K., TSAYREF, K. M., Kishinev, Scientific Research Institute of Instrument Building

"A Wire-Wound Resistor"

USSR Author's Certificate No 283365, filed 7 Apr 69, published 11 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V362 P)

Translation: This Author's Certificate introduces a wire-wound resistor which consists of wires connected in parallel and wound on a common form. As a distinguishing feature of the patent, reactance is reduced by using an even number of wires in the winding, connecting the initial ends of even-numbered wires and terminal ends of odd-numbered wires to one of the current leads arranged along the axis of the form, and connecting the initial ends of odd-numbered wires and terminal ends of even-numbered wires to the other current lead.

1/1

Acc. Nr:
AP0034211

Abstracting Service:
CHEMICAL ABST. 4-70

Ref. Code:
UR 0078

T

71108p Effect of background cations on the rate of activation
of iridium(III) hexachloride complexes. Kravtsov, V. I.;
Tsventarnyi, E. G.; Tsayun, G. P.; Yusupova, V. A. (Lenin-
grad. Gos. Univ., Leningrad, USSR). *Zh. Neorg. Khim.* 1970,
15(1), 81-3 (Russ). Rate const. (*k*) of $IrCl_6^{3-}$ aquation was
detd. in 0.1, 1, and 3*M* solns. of LiCl and NaCl and in 0.1*M* KCl
at 25-60° and at pH 3. At const. alkali chloride concn., *k*
decreased with cations in the order Li > Na > K. It decreased
also with increasing LiCl or NaCl concn. Apparently, alkali
cations affect the orientation of water mols. around $IrCl_6^{3-}$.
For 0.1*M* LiCl, NaCl, and KCl, the activation energy of $IrCl_6^{3-}$
aquation is 25.3, 26.5, and 26.9 kcal/mole, resp. The activa-
tion energy decreased with increasing alkali chloride concn.

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UDC 621.315.592

ROZUMNYUK, V. T., NESTERENKO, B. A., TSBULYA, G. G., LISITSA, M. P., SNITKO, O. V., Institute of Semiconductors, Academy of Sciences of the UkrSSR, Kiev

"Optical Properties of Germanium with a Clean Surface and with an Oxidized Surface"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 9, Sep 70, pp 1770-1775

Abstract: The authors investigate the effect which the physicochemical state of the surface has on the reflectivity of semiconductors. The study specimens were single crystals of germanium with atomically clean and oxidized (etched) surfaces. In addition to reflection, the specimens were studied for edge absorption and photoconductivity. It was found that the reflection spectra of germanium with an atomically clean surface have two peaks with energies of 2.6 and 2.8 eV in addition to the peaks at 2.1 and 2.3 eV inherent in specimens with oxidized surface. A surface origin is attributed to the maxima at 2.6-2.8 eV, while the maxima at 2.1-2.3 eV are assumed to stem from transitions within the specimen. The atomically clean surface also shows a shift of 0.02 eV toward the short-wave region as compared with the oxidized surface in studies of edge absorption and photoconductivity. This

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ROZUMNYUK, V. T., et al., *Fizika i Tekhnika Poluprovodnikov*, Vol 4, No 9, Sep 70, pp 1770-1775

shift is attributed to the simultaneous effect of various mechanisms involving optical transitions on surface levels, quantum effects associated with the strong electrical field on the atomically clean surface and simple physical changes such as surface tension.

USSR

MOZGOVOY, Ye. N., BLUM, E. Ya., TSEBERS, A. O.

"Flow of a Ferromagnetic Fluid in Thin Capillaries"

7-ye. Soveshch. po Magnit. Gidrodinamike. T. 1. [Seventh Conference on Magnetic Hydrodynamics, Vol 1 -- Collection of Works], Riga, Zinatnye Press, 1972, pp 193-195, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 B78, by I. Ye. Tarapov).

Translation: Results are presented from an experimental study of the effective viscosity of a ferrosuspension (iron particles measuring about 30 A in toluene) in a capillary viscosimeter (tube diameter 0.4-1.2 mm), placed in a homogeneous magnetic field, perpendicular to the flow. The magnetic field causes an increase in the measured effective viscosity as a function of particle concentration; the curves of increasing viscosity become saturated with fields on the order of 0.2 wb/m^2. In fields greater than 0.4 wb/m^2, a viscosity decrease is observed, caused by precipitation of the metal.

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USSR

UDC: 621.374.34(088.8)

TSEBIN, L. V.

"A Voltage Limiter"

USSR Author's Certificate No 258380, filed 12 Feb 68, published 22 Apr 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G270 P)

Translation: This Author's Certificate introduces a voltage limiter which contains an amplifier based on a transistor, and a bias circuit fed from a stabilized power supply. To improve the shape of the output signal and simplify the circuit, a stabilitron voltage divider is connected between the terminals of the power supply. The centertap of the divider is connected to the collector of the transistor, and is the output terminal of the limiter.

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USSR

SIDORENKO, R.R., TSEBIN, L.V. UDC 621.314.14 (088.8)

"D-C Voltage Converter"

USSR Author's Certificate No 261554, filed 18 June 68, published 14 May 70 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B537P)

Translation: A circuit is proposed for a d-c to a-c voltage converter. The converter contains two or more semibridge circuits, each of which is fulfilled on the basis of two transistors and contains a charging capacitor, a feedback winding, and a resistance series network [tsepochka]. The semibridge circuits are series-connected in this way in order for the transistor of the foregoing converter, shunted with respect to the section collector-emitter of the resistance network, to be connected by its emitter to the collector of the transistor of the following semibridge, the analogous junction of which is shunted by the same network. A common transformer is used for the two semibridges. Voltage not exceeding half of the power-supply voltage is supplied to each of the transistors. This makes it possible to use the converter for operation at the increased voltage with high reliability. 1 ill. V.Sh.

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USSR

~~TSERIN, L. V.~~

UDC 621.316.722 (088.8)

"D-C Voltage Regulator"

USSR Author's Certificate No 258398, Filed 1 July 68, published 14 Apr 70 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B553P)

Translation: The circuit is proposed of a transistorized d-c voltage regulator, with a series regulator transistor connected in a circuit with a common emitter and an unusual 2-stage d-c amplifier in which a combination is used of two transistors of unlike conductivity. A semiconductor diode connected in the forward direction is used as a reference voltage. The same semiconductor diode is used in the output voltage divider for temperature compensation. 1 ill. S.D.

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USSR

TSEBIYEV, A. M. UDC 621.374.44(088.8)

"Millimeter Band Frequency Multiplier"

USSR Author's Certificate No 232326, filed 31 Jul 64, published 17 Apr 69 (from RZh-Radiotekhnika, No 2, Feb 70, Abstract No 2D85P)

Translation: The proposed frequency multiplier with a wide tuning band consists of two sections (multiplier and generator) connected by a coupling window. The multiplier section uses a semiconductor diode in a waveguide resonator, whose tuning frequency corresponds to a definite harmonic of the input signal and to the fundamental frequency of the signals of the coaxial oscillator using an avalanche-transit-time semiconductor diode, which forms the generator section. The avalanche-travel-time diode-based generator is captured at its fundamental frequency by the harmonic of the input signal, and the power at one of its own harmonics lying in the millimeter band is tapped of by the waveguide. N.F.

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USSR

ALEKSEYEVSKIY, N. YE., TSEBRO, V. I., FILIPPOVICH, YE. I., Institute of Physical Problems, Academy of Sciences USSR

"Superconductivity of Beryllium Films Evaporated Together With Zinc Etioporphyrin"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 13, No. 5, 5 Mar 71, pp 247-250

Abstract: The critical temperature of beryllium films evaporated together with zinc etioporphyrin (Zn-ep) on a substrate kept at liquid helium temperature was investigated. It is noted that beryllium films condensed on a cold substrate transform into the semiconducting state in the temperature range 5.4-8.6°K and that the magnitude of the critical temperature is a function of film thickness. The possibility of raising the transition temperature with a joint evaporation of a metallic and nonmetallic component has been discussed in the literature, and the use of Zn-ep as the nonmetallic component seemed of additional interest, since Zn-ep is one of the possible objects in which the electron-electron mechanism of superconductivity could be observed. A film with a thickness of ~500 Å was produced and the critical temperature of this film was equal to 10.2°K. Besides the films

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Pis'ma v Zhurnal eksperimental'noy i teoreticheskoy fiziki, Vol. 13, No. 5, 5 Mar 71, pp 247-250

obtained by joint evaporation of Be and Zn-ep, films were prepared with laminar evaporation of Be and Zn-ep. Films were prepared with layer-by-layer evaporation of Be and Zn-ep. Measurements showed that the critical temperature of 7.7°K did not change with the addition of other layers from the critical temperature of the first layer of Be. The increase in critical temperature in films made with the joint evaporation of Be and zinc etioporphyrin is ascribed to the appearance of the electron-electron mechanism of superconductivity, and it is also hypothesized that a layer consisting of small crystals of Be separated by Zn-ep has a high transition temperature as a result of three-dimensional quantization of electrons in Be crystals. To check the validity of this hypothesis, experiments were conducted in which joint evaporation of Be and KCl was carried out. The results show that in this case the layers obtained by joint evaporation have high critical temperatures which are independent of the thickness of the layer. These layers also do not have a critical thickness, and superconductivity was maintained in them up to a thickness of $\sim$1000 Å. It was also noted that these layers remain superconducting even after heating up to a temperature close to room temperature.

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USSR 7 UDC 535.343.2

TSEBULYA, G. G., LISITSA, M. P., and MALINKO, V. N.

"New Interpretation of Edge Absorption of Germanium and CdTe"

Spektroskopiya Atomov i Molekul [Spectroscopy of Atoms and Molecules -- Collection of Works] Kiev, Nauk. Dumka Press, 1969, pp 249-251 (translated from Referativnyy Zhurnal Fizika, No 6, 1970, Abstract No 6D542 by A. Ye. Cherednichenko)

Translation: The boundary absorption of Ge and CdTe produced in an earlier work (FZHFiz, 1961, 12YE15) is studied on the basis of an expression for the density of states in an actual crystal. An expression is obtained for the absorption factor which becomes the well-known relationship $K = A(h\nu - E_g)^{1/2}$. Here $h\nu - E_g \gg \Gamma$ (ν is the frequency of the radiation being absorbed, E_g is the optical width of the forbidden zone, Γ characterizes the attentuation resulting from disruptions in periodicity of the lattice). Based on the assumption that the discontinuity of the tail of the density of states follows the rule exp $(-CE^2)$, a concrete expression for the absorption factor is produced, which is compared with the experimental relationships. The passage of Ge and CdTe into the area of the absorption boundary is studied experimentally. The measurement data